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HEADLINE: Turnpike ends talks with Amtech group;
State agency, firms can't agree on toll system price

BYLINE: Tom Steinert-Threlkeld, Staff Writer of The Dallas Morning News

BODY:

The Texas Turnpike Authority has stopped negotiating with Motorola Inc. and Amtech Corp. for the installation of a new electronic toll collection and video enforcement system on the Dallas North Tollway.

The state agency broke off negotiations with the Motorola-Amtech team because "we couldn't come to agreement on price,' said Jerry Shelton, the authority's director of administration.

The agency instead will try to negotiate a contract with Cubic Toll Systems Inc., the company responsible for the coin-basket system used primarily on the tollway. Mr. Shelton said negotiations with Cubic began this week.

The original choice of Motorola Inc. as the main contractor for installing the new system had been challenged by Cubic, which questioned the selection because of Motorola's lack of experience in the installation of toll collection systems.

The Motorola-Amtech bid is an outgrowth of an alliance the two companies formed last August to pool electronics expertise in the pursuit of new toll collection business. Amtech pioneered the use of radio frequencies and computers as a means of electronically collecting tolls from moving vehicles. The Dallas North Tollway was its first installation of its electronic toll tag system.

At various points in the last year, competitors have called Amtech's system potentially flawed and inefficient in collecting tolls.

But the authority has maintained that Amtech's system works effectively, and Mr. Shelton said the failure to negotiate a deal for the more complex system had nothing to do with any fears about the quality of the system that the Motorola and Amtech team would provide.

Lawrence Moore, manager of public affairs for Motorola's government electronics group in Scottsdale, Ariz., said, "it's not really appropriate for us to comment on that.'

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Amtech was acting as a subcontractor to Motorola and was to supply equipment that was unrelated to the electronic toll collection system already used on the tollway.

In December, the turnpike authority voted to buy Amtech's toll tag system, effective July 1, 1994.

Cubic's director of marketing, Phil Dixon, said negotiations with his company are only just beginning, but that he is hopeful the two sides could come to agreement on price.

If negotiations with Cubic also fail, the authority still may try to come to terms with Southwestern Bell Corp., the third company deemed by the authority to be capable of supplying a "quality' system.

The new contract will cover a system that the authority last year estimated would cost $ 14.2 million and cover electronics at 60 existing and 28 new toll lanes. The number of lanes later was reduced to 81.

The new system will tie together the monitoring and collection of tolls taken by three different systems now in use: electronic toll tags, coin baskets and manual cash registers.

The integration of the systems and the addition of video surveillance is designed to stem abuse of the toll collection process on the Dallas North Tollway. In April, the authority acknowledged that it is unable to collect hundreds of thousands of tolls each month, attributing a large part of the problem to motorists who drive through toll booths without paying and theft by

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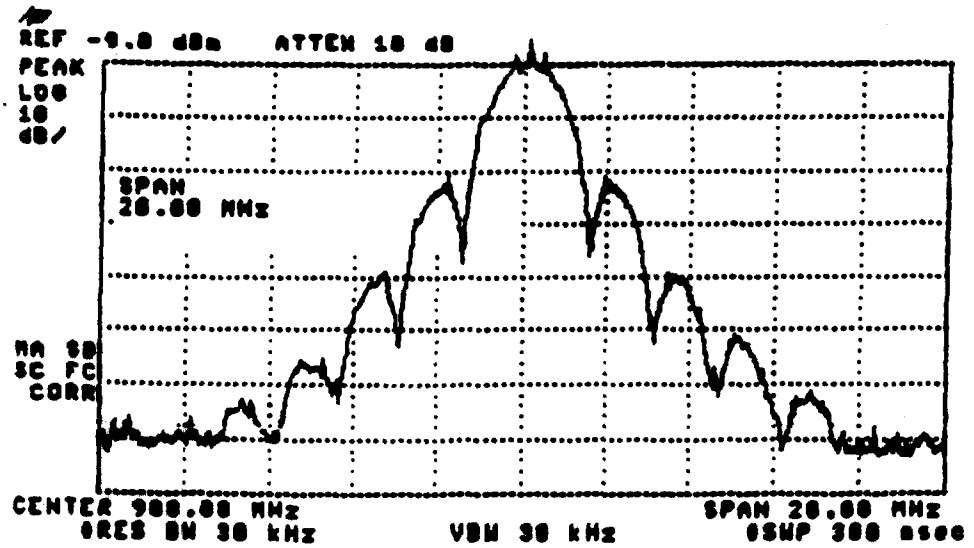

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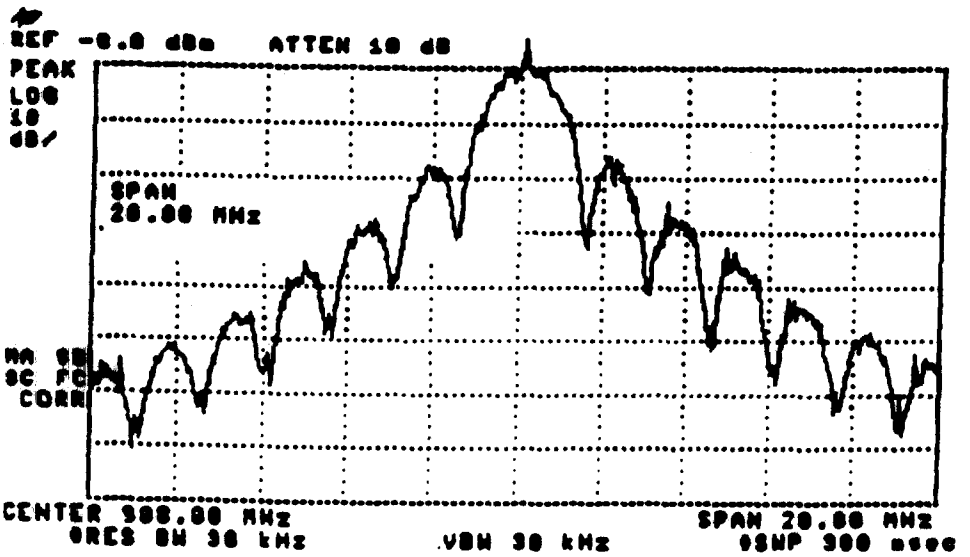

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MARKETPLACE

Sextants in Space Can Change the World

By SUSAN CAREY
Staff Reporter of THE WALL STREET JOURNAL

The ancient science of navigation is poised to take a great leap forward, thanks to the June launch of the last of 24 Defense Department satellites that comprise the so-called Global Positioning System.

Surveyors and sailors aren't throwing away their sextants just yet, and radar remains standard equipment for jetliners and ships. But GPS offers "immediate and tremendous economic applications for the private sector," asserts Transportation Secretary Federico Pena.

Now that the constellation is complete and the satellite radio signals are available 24 hours a day world-wide, GPS's role as a successor to earlier navigation systems such as Loran and SatNav seems assured. Experts say GPS has obvious advantages over the earlier systems: It's world-wide, three-dimensional (providing latitude, longitude and altitude), easy to use and free to everyone.

In a first step toward wider GPS use in commercial aviation, the Federal Aviation Administration last month approved certain landing procedures to be guided by GPS. Continental Airlines is the guinea pig for that test. Other large U.S. airlines also are experimenting with GPS in other phases of flight. And Boeing Co. is making GPS receivers standard equipment on its new 777 model.

Moreover, Mr. Pena says, the Transportation Department has begun changing its procurement agenda for the continuing national air-traffic-control-system upgrade to reflect the wider availability of GPS and its future role. Avionics suppliers such as Honeywell Inc. already have developed flight-management computers that interact with GPS. And the International Civil Aviation Organization is considering it as a new world standard.

GPS has already changed the world—or at least the maps of part of it. According to Dave Doyle, a senior geodesist for the U.S. Geodetic Survey, latitude and longitude markings for North America literally were redrawn once the agency had access to GPS. "It was redefined with new levels of accuracy most surveyors would never approach," he says.

None of which was the main objective when the Defense Department launched the first satellite in 1978. GPS was—and is—primarily intended for military use. Even though it wasn't completed then, GPS during the Gulf War earned its stripes—and lots of publicity—by helping troops find their way in the region's featureless sands with only hand-held receivers.

However, the Pentagon didn't ignore civilians. Indeed, the signal is available free to anyone in the world who buys a special GPS receiver. Many companies make such receivers, and prices have fallen significantly in the past few years.

How GPS works is simple geometry with a high-tech spin. From their very stable orbits 10,900 miles above the Earth, the satellites broadcast identical radio signals simultaneously. Receivers on Earth measure how long it takes the radio signals from as many as four different satellites to arrive, thereby measuring how far away the satellites are. By reading the locations of several satellites and triangulating them, the receiver can figure out where it is on the planet.

There are some roadblocks to GPS's widespread use in transportation, however. The military receives a specially coded GPS signal that can plot a location in three dimensions to within feet. For security reasons, civilian users receive a degraded signal that guarantees accuracy only to within 300 feet. And that is not close enough for an airliner, a ship or even a car with a navigation system to operate safely in confined spaces.

Until now, most commercial users have dealt with the problem by stationing a radio beacon and having its known position "correct" the degraded GPS readings. But implementing this system, called differential GPS, is going to be more difficult for airlines and other big users that need precise information, experts say.

Hence, Transportation Secretary Pena has a task force working with the military to see how the purer signal could be unleashed for all users without compromising defense needs. He says he also is working to have the system put under the joint administration of Defense and Transportation—a move that could mollify potential overseas users who worry that the U.S. military might terminate the signals in an emergency.

Another potential problem is how to know when the system isn't working. According to one Coast Guard official, there currently is no way for civilians to monitor the integrity of the GPS signals.

There are other issues as well. In aviation, GPS would have to be introduced to work in tandem with other navigational aids. Shipping companies say even the military version of GPS isn't accurate enough to guide vessels in harbors. For automotive users, GPS would be impractical in areas where mountains or tall buildings would prevent the satellite signals from reaching the receivers.

But as its possibilities are harnessed and as regulations and infrastructure catch up with the new technology, GPS will change the ways many industries operate and ultimately introduce new levels of safety and efficiency. For instance, with so-called kinematic-surveying techniques, which can read GPS location signals on moving equipment, the blades of, say, a road grader could be guided with accuracies down to a centimeter.

Civilian uses for the technology have exploded in the past several years, both because GPS's coverage increased as more satellites were launched and because the price of basic receivers has dropped to less than $1,000 from $10,000 in 1986. An Air Force spokesman says: "Who would have envisioned that a guy with a $7,000 pleasure boat could have access to a navigation system for $500 to $600?"

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I hereby certify that on this 29th day of July, 1993, a copy of the foregoing REPLY COMMENTS OF NORTH AMERICAN TELETRAC AND LOCATION TECHNOLOGIES, INC., was served by first class United States mail, postage prepaid, on the following parties:

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